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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,258	KUO, SHIH-ZHENG	
	Examiner	Art Unit	
	STEVEN KAU	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/15/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Continued Examination Under 37 CFR 1.114: A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 16, 2008 has been entered.

Response to Arguments

2. This action is responsive to the following communication: an Amendment filed on January 16, 2008.

- Claims 1-30 are currently pending.
- Applicant's arguments, "Claim Rejections Under 35 U.S.C. § 101", Page 12, filed January 16, 2008, with respect to claims 25-30 have been fully considered and are persuasive. In addition, claims 25-30 have been amended to satisfy the statutory requirements of 35 U.S.C. § 101. The rejection of claims 25-30 under 35 U.S.C. § 101 has been withdrawn from the record.
- Applicant's arguments filed on January 16, 2008 have been fully considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments have been fully considered but they are not persuasive. Specifically in response to applicant's arguments, "Claims Rejection Under § 112", Page

10, filed January 16, 2008, with respect to claims 19-24. The rejection of claims 19-24 under 35 U.S.C. § 112 second paragraph is remained in record. Since the “means for" in claims 19-24 has not been modified by functional language, the examiner does not consider claims 19-24 invoke 35 U.S.C. 112, sixth paragraph. In other words, claims 19-24 will treated as claims without "means for" function, see MPEP 2181 [R-6]. Applicant's argument, recites, "One example of a ‘means for scanning’ is disclosed in paragraph [003]: ‘the chassis 114 can be moved along the direction of arrow 105 in order to scan the document 112, as shown in FIG. 1 .’ and ‘One example of a means for supporting is disclosed in paragraph [003]: ‘The scanning platform 110 can also be situated on the top 108, so as to align a document 112’”. The examiner notices that paragraph [003] is under the section of “Description of Related Art”, where neither disclosing embodiment, nor disclosing a function, features, hardware, or software for the invention, but just disclosing general information about “related arts” in the filed. Further, there is no "means for" function(s) disclosed in that paragraph, or in any embodiments in the disclosure. The examiner likes to refer the applicant to the following paragraph cited in MPEP 704.11[R]: "Clarification of the correlation and identification of what structure, material, or acts set forth in the specification would be capable of carrying out a function recited in a means or steps plus function claim limitation. If it is not apparent to the examiner where in the specification and drawings there is support for a particular claim limitation reciting a means to accomplish a function, and if an inquiry by the examiner for such support is met by a stated lack of knowledge thereof by the applicant, the examiner could very well conclude that there is no such support and make appropriate

rejections under, for example, 35 U.S.C. 112, first paragraph (written description) and 35 U.S.C. 112, second paragraph (emphasis added by the examiner).

Applicant's arguments, section “Interview Summary”, Pages 9-10, recite, “the examiners agreed that claim 1 (and similar claims) were allowable over the cited reference.”

In response, the examiners recognized amended claims may overcome the cited reference at the time the interview was held. However, each claim must be thoroughly examined to ensure the invention is novelty and non-obviousness. Since the claims are found obviousness to one skilled in the art at the time the invention was made, no claims have been allowed in this office action.

Applicant argues that “The applicant first points out that none of the references teach or suggest ‘a longitudinal white pattern’ (as recited in claim 1, with a similar element in claim 4) or % longitudinal black pattern’ (as recited in claim 1, with a similar element in claim 7). For example, Horiuchi's scale line is longitudinal, but is not a ‘white pattern" or a "black pattern,’ and instead comprises "alternations of high-density and low-density divisions that are arranged one after another at a distance interval equal to the least pitch readable by the document-image reading device.' That is, Horiuchi's scale line is striped in the longitudinal direction, and thus is clearly not the same as the applicant's "longitudinal white pattern" or "longitudinal black pattern.”

In response, using white and black pattern as calibration reference in scanner is not a new invention. It has been well known in the art that black and white calibration strips are used and built in inside the scanner in manufacturing. For example, Kolker

(US 3,952,144, April 1976) discloses black and white calibration strip for scanner calibration (Fig. 1, col 8, lines 7-14), Coy et al (US 5,091,654, Feb. 1992) discloses black and white calibration strip (Fig. 5, col 12, lines 1-5), and Uffel (US 5,331,428, Jul. 1994) discloses black and white calibration (Fig. 3, col 3, lines 9-10), and so on.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns,* 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The examiner also references the applicant to the claims rejection section below for the explanation on how the prior art references read on the amended claims.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 25-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding Claim 25, recites, "~~An article of machine~~ computer-readable media containing code that, when executed by a ~~machine~~ computer, causes the ~~machine~~ computer to: scan a document and a reference pattern; determine actual gray

level values for each pixel of a scanned image of the document; determine compensational gray level values for each pixel of the scanned image based at least in part on a scanned image of the reference pattern: and compensate the scanned image using the compensational gray level values" (emphasis added by applicant). Neither an article nor computer-readable media has been disclosed in the original disclosure.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 10-18 and 19-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention**.

Regarding claim 19, an apparatus claim, recites, "An apparatus comprising: a top having a surface; means for scanning configured to be moveable under the top; means for supporting a document above the means for scanning; means for referencing disposed at the surface of the top adjacent to the means for supporting; and means for ~~processing~~ image compensating configured to: determine actual gray level values for each pixel of a scanned image of the document; determine compensational gray level values for each pixel of the scanned image based at least in part on the means for referencing; and compensate the scanned image using the compensational gray level values" (emphasis added by applicant). The word "means for" is preceded by the words "scanning", "supporting", and "image compensating" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function.

However, without having a function to modify "means for" makes the claim undefined. For example, one skilled in the art does not understand which subject matter of "means for scanning configured to be moveable under the top; means for supporting a document above the means for scanning; means for referencing disposed at the surface of the top adjacent to the means for supporting; and means for ~~processing~~ image compensating configured to …" that the applicant regards as his invention, because there is no hardware units or device supporting the scanning process, supporting document(s), or for image compensation.

Regarding Claim 10, limitations recite, "a scanning chassis configured to be moveable under the top portion; a scanning platform disposed at the top portion, the scanning platform configured to support a document above the scanning chassis" (emphasis added by the examiner). One skilled in the art does not understand how a scanner chassis be configured so that it is moveable under the top portion of the physical scanner body. The examiner will give a broadest reasonable interpretation for configuring a moveable part under the top portion of the scanner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. **Claims 1, 3-4, 6-7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al (Horiuchi) (US 6,445,469) in view of Seachman et al (Seachman) (US 5,621,217) and further in view of Hsu et al (Hsu) (US 6,452,631)**.

Regarding claim 1.

Horiuchi discloses an image compensating method (**e.g. perform accurate correction of image data, col 4, line 37 through col 5, line 11**), comprising: scanning a document (**col 3, lines 18-26 and lines 54-58**), thereby producing a plurality of actual gray level values for a plurality of pixels of the document (**e.g. determining a gray-level change of each scale line, col 3, lines 18-26; & measuring black line or white line, col 13, lines 1-10**); determining a plurality of correctional gray level values for complete black and a plurality of correctional gray level values for complete white based at least in part on the black and white patterns (**Horiuchi discloses multiple embodiments illustrate determining a plurality of correctional gray levels for black and white based on black and white pattern; e.g. third and fourth embodiments of Figs 20-26, col 10, line 56 through col 11, line 36**); a theoretical gray level value for complete black (e.g. col 8, lines 52-58), a theoretical gray level value for complete white (col 8, lines 52-58), and the actual gray level value for each of the pixels (**col 8, lines 49-59**); and compensating a scanned image of the document using the compensational gray level value for each of the pixels (**compensate the whole image by using the**

correction factor so that all the white (or black) portions show a constant value, col 13, lines 16-44).

Horiuchi does not explicitly teach a longitudinal white pattern, and a longitudinal black pattern and determining a compensational gray level value with respect to the actual gray level value for each of the pixels based at least in part on a respective one of the correctional gray level values for complete black, a respective one of the correctional gray level values for complete white.

Seachman teaches a longitudinal white pattern, and a longitudinal black pattern (**Figs 1-2, col 4, lines 4-16**).

Hsu teaches determining a compensational gray level value (**e.g. First Embodiment of Fig. 3, col 5, lines 5-55 and col 6, lines 8-32**) with respect to the actual gray level value (**e.g. gray level of recorded object such a picture**) each of the pixels based at least in part on a respective one of the correctional gray level value for complete black (**Fig. 4, col 5, lines 19-55**), a respective one of the correctional gray level value for complete white (**Fig. 4, col 5, lines 19-55**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Horiuchi to include a longitudinal white pattern, and a longitudinal black pattern taught by Seachman to generate image data for gray level calibration process (col 4, lines 49-67, Seachman), and then to have modified Horiuchi combined with Seachman to include determining a compensational gray level value with respect to the actual gray level value for each of the pixels based at least in part on a respective one of the correctional gray level values for complete black, a

respective one of the correctional gray level values for complete white taught by Hsu to compensate for degraded image for image quality improvement.

Regarding claim 3.

Horiuchi discloses calculating [(each of the actual gray level values with respect to each of the pixels -- the respective correctional gray level value for complete black) / (the respective correctional gray level value for complete white -- the correctional gray level to value for complete black) x (the theoretical gray level value for complete white -- the theoretical gray level value for complete black)] (Horiuchi teaches and suggests embodiments (e.g. First, Third to Eleventh) for using equations (col 9, lines 50-60) and subroutines A1, A2 and A3 for determining compensational gray level, Figs. 9, 16, 25, 26, 27 and 28, cols 9 through 12).

Regarding **claim 4**, the structure elements of method claim 1 perform all steps of method claim 4. Thus claim 4 is rejected under 103(a) for the same reason discussed in the rejection of claim 1.

Regarding **claim 6**, the structure elements of method claim 3 perform all steps of method claim 6. Thus claim 6 is rejected under 103(a) for the same reason discussed in the rejection of claim 3.

Regarding **claim 7**, the structure elements of method claim 1 perform all steps of method claim 7. Thus claim 7 is rejected under 103(a) for the same reason discussed in the rejection of claim 1.

Regarding **claim 9**, the structure elements of method claim 3 perform all steps of method claim 9. Thus claim 9 is rejected under 103(a) for the same reason discussed in the rejection of claim 3.

9. Claims 2, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horiuchi et al (Horiuchi) (US 6,445,469) in view of Seachman et al (Seachman) (US 5,621,217) and further in view of Hsu et al (Hsu) (US 6,452,631) as applied to claims 1 and 7 above, and further in view of Sheng et al (Sheng) (US 6,753,982)

Regarding claim 2.

Horiuchi does not explicitly teach a top; a scanning chassis configured to be movable under the top; and a scanning platform disposed at the top, wherein the scanning platform is configured to support the document above the scanning chassis, wherein the longitudinal black and white patterns are disposed on an inner wall of the top adjacent to the scanning platform, such that the scanning chassis can scan the document and the longitudinal black and white patterns substantially simultaneously.

Sheng discloses wherein the method is used in a scanner (Figs. 1-5) and the scanner comprises: a top (**of a scanner, Figs 1a-c**); a scanning chassis (**Scanning Module 14 of Figs. 1 a-b & 2a**), configured to be movable under the top (Figs. 1a-b, 2a and 4b, col 3, lines 50-65); and a scanning platform disposed at the top (Flat Glass Platform 20 of Fig. 1a-c), wherein the scanning platform is configured to support and used to be aligned with the document above the scanning chassis, (Figs. 1a-c, col 3,

lines 55-57), wherein (the edge detector) is disposed on an inner wall of the top adjacent to the scanning platform, such that the scanning chassis can scan the document and (the edge detector) substantially simultaneously (Figs. 1a-b, col 3 lines 62 through col 4, line 22).

Seachman teaches the longitudinal black and white patterns (Figs 1-2, col 4, lines 4-16).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Horiuchi combined with Seachman and Hsu to include a top (of a scanner); a scanning chassis, configured to be movable under the top; and a scanning platform disposed at the top, wherein the scanning platform is configured to support and used to be aligned with the document above the scanning chassis, wherein the longitudinal black and white patterns are disposed on an inner wall of the top adjacent to the scanning platform, such that the scanning chassis can scan the document and the longitudinal black and white patterns substantially taught by Sheng to provide a physical scanner for gray level compensation process, and then to have modified Horiuchi with Seachman, Hsu and Sheng to include the longitudinal black and white patterns taught by Seachman. The motivation is to improve a scanner to obtain actual gray level and correctional gray level by scanning both document and calibration black and white strips and to determine gray level compensation for image reproduction.

Regarding **claim 5**, the structure elements of method claim 2 perform all steps of method claim 5. Thus claim 5 is rejected under 103(a) for the same reason discussed in the rejection of claim 2.

Regarding **claim 8**, the structure elements of method claim 2 perform all steps of method claim 8. Thus claim 8 is rejected under 103(a) for the same reason discussed in the rejection of claim 2.

10. Claims 10-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheng et al (Sheng) (US 6,753,982) in view of Horiuchi et al (Horiuchi) (US 6,445,469) and further in view of Seachman et al (Seachman) (US 5,621,217).

Regarding claim 10.

Sheng discloses an apparatus comprising: a top portion having a surface (**Fig. 1b**); a scanning chassis (**Main body 12 of Fig. 2b**) configured to be moveable under the top portion (**Scanning module 14 of Fig. 2b is moveable under the top portion of the scanner, col 3, lines 47-65**); a scanning platform disposed at the top portion (**Flat Glass Platform 20 of Fig. 1a**), the scanning platform configured to support a document above the scanning chassis (**Figs. 1a-b, col 3, lines 55-57**).

Sheng does not explicitly teach that a reference pattern disposed on the surface of the top portion adjacent to the scanning platform; a processor configured to determining actual gray level values for each pixel of a scanned image of the document; determine compensational gray level values for each pixel of the scanned image based

at least in part on the reference pattern; and compensate the scanned image using the compensational gray level values.

Seachman teaches a reference pattern disposed on the surface of the top portion adjacent to the scanning platform (**Figs 1 & 2, "a lamp 1 illuminates a calibration strip 3 with light 10 during a calibration process" implies that calibration strip 3 must be disposed on the top portion adjacent to the scanner platform, otherwise, sensor array will not be able to pick the reflected light from calibration strip for calibration, col 4, lines 4-22**).

Horiuchi teaches a processor (**e.g. microprocessor, col 3, lines 9-16**) configured to determine actual gray level values for each pixel of a scanned image of the document (**col 3, lines 18-26, determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line**); determine compensational gray level values for each pixel of the scanned image based at least in part on the reference pattern (**examine and compensate the whole image, col 13, lines 16-26**); and compensate the scanned image using the compensational gray level values (**compensate the whole image by using the correction factor so that all the white (or black) portions show a constant value, col 13, lines 16-44**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include a reference pattern disposed on the surface of the top portion adjacent to the scanning platform taught by Seachman to generate image data for gray level calibration process (**col 4, lines 49-67, Seachman**), and then to have modified Sheng combined with Seachman to include a processor

configured to determining actual gray level values for each pixel of a scanned image of the document; determine compensational gray level values for each pixel of the scanned image; and compensate the scanned image using the compensational gray level values taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (**col 1, lines 45-49, Horiuchi**).

Regarding claim 11.

Sheng does not teach wherein the processor is further configured to determine a correctional gray level value based at least in part on the reference pattern.

Horiuchi discloses wherein the processor (**e.g. microprocessor, col 3, lines 9-16**) is further configured to determine a correctional gray level value based at least in part on the reference pattern (**Chart 17 of Fig 8, col 8, lines 41-58, e.g. The chart 17 is read by the image reading means in such a way that the longitudinal direction of the chart may meet with the feed direction of the image reading means, and "0" value for black and "255" value for white as indicated in the test chart**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include the processor is further configured to determine a correctional gray level value based at least in part on the reference pattern taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the

scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 12.

Sheng does not teach wherein the reference pattern comprises a black pattern and a white pattern, and wherein the processor is further configured to determine a black correctional gray level value and a white correctional gray level value.

Horiuchi discloses wherein the reference pattern comprises a black pattern and a white pattern (**Chart 17 of Fig 8**), and wherein the processor is further configured to determine a black correctional gray level value and a white correctional gray level value (**correction factor is determined by image data of density (high and low, "0" for black and "255" for white, col 4, lines 49 through col 5, line 11, & col 8, lines 52-58**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include the reference pattern comprises a black pattern and a white pattern, and wherein the processor is further configured to determine a black correctional gray level value and a white correctional gray level value taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding claim 13.

Sheng does not discloses wherein the processor is further configured to determine the compensational gray level value of a particular one of the pixels based at least in part on the black correctional gray level value, the white correctional gray level value, a theoretical gray level value for complete black, a theoretical gray level value for complete white, and the actual gray level value for each of the pixels.

Horiuchi teaches wherein the processor is further configured to determine the compensational gray level value of a particular one of the pixels based at least in part on the black correctional gray level value (**col 13, lines 1-26**), the white correctional gray level value (**col 13, lines 1-26**), a theoretical gray level value for complete black (**Fig. 28, col 11, lines 53 through col 12, line 11**), a theoretical gray level value for complete white (**Fig. 28, col 11, lines 53 through col 12, line 11**) and the actual gray level value for each of the pixels (**col 3, lines 18-26 determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include the reference pattern comprises a black pattern and a white pattern, and wherein the processor is further configured to determine a black correctional gray level value and a white correctional gray level value taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding **claim 14**, Sheng differs from claim 14, in that he does not disclose wherein the reference pattern comprises a black pattern, and wherein the processor is further configured to determine a black correctional gray level value.

Horiuchi discloses wherein the reference pattern comprises a black pattern (**Chart 17, Fig 8**), and wherein the processor is further configured to determine a black correctional gray level value (**col 13, lines 1-26**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include wherein the reference pattern comprises a black pattern, and wherein the processor is further configured to determine a black correctional gray level value taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding **claim 15**, the structure elements of apparatus claim 13 perform all steps of apparatus claim 15. Thus claim 15 is rejected under 103(a) for the same reason discussed in the rejection of claim 13.

Regarding **claim 16**, Sheng differs from claim 16, in that he does not disclose wherein the reference pattern comprises a white pattern, and wherein the processor is further configured to determine a white correctional gray level value.

Horiuchi discloses wherein the reference pattern comprises a white pattern (**Chart 17 of Fig. 8**), and wherein the processor is further configured to determine a white correctional gray level value (**col 8, lines 41-58**).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include wherein the reference pattern comprises a white pattern, and wherein the processor is further configured to determine a white correctional gray level value taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding **claim 17**, Sheng differs from claim 17, in that he does not disclose wherein the processor is further configured to determine the compensational gray level value of a particular one of the pixels based at least in part on the white correctional gray level value, a theoretical gray level value for complete white, and the actual gray level value ~~for each~~ of the particular pixels.

Horiuchi discloses wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value (col 13, lines 1-26), a theoretical gray level value for complete white (Fig. 28, col 11, lines 53 through col 12, line 11), and the actual gray level value for each of the pixels (col 3, lines 18-26 determining a gray-level change of each scale line, & col 13, lines 1-10; measuring black line or white line).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include wherein the processor is further configured to determine the compensational gray level value based at least in part on the white correctional gray level value, a theoretical gray level value for complete white,

and the actual gray level value for each of the pixels taught by Horiuchi to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding **claim 18**, Sheng discloses wherein a length of the edge detector is equal to or greater than a length of the scanning platform (Edge detector 16 of Figs 1a-b).

Sheng does not teach the reference pattern.

Seachman teaches wherein a length of the edge detector is equal to or greater than a length of the scanning platform (Chart 17 of Fig 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Sheng to include a length of the edge detector is equal to or greater than a length of the scanning platform taught by Seachman. It would have been a common sense for one of skilled in the art at the time of invention to replace Shang's teaching of using a edge detector, which length is equal to or greater than the length of the scanning platform (Edge Detector 16 of Fig. 1a-b, col 4, lines 31-44) with a reference pattern at the location of Shang's scanner platform to improve the accuracy of image scanning to compensate the possible distortion of a reproduced image due to fluctuation of the scanning speed without a considerable increase of the manufacturing cost of the image reading device (col 1, lines 45-49).

Regarding **claim 19**, the structure elements of apparatus claim 10 perform all steps of apparatus claim 19. Thus claim 19 is rejected under 103(a) for the same reason discussed in the rejection of claim 10.

Regarding **claim 24**, the structure elements of apparatus claim 18 perform all steps of apparatus claim 24. Thus claim 24 is rejected under 103(a) for the same reason discussed in the rejection of claim 18.

Regarding **claim 20**, the structure elements of apparatus claim 11 perform all steps of apparatus claim 20. Thus claim 20 is rejected under 103(a) for the same reason discussed in the rejection of claim 11.

Regarding **claim 21**, the structure elements of apparatus claim 12 perform all steps of apparatus claim 21. Thus claim 21 is rejected under 103(a) for the same reason discussed in the rejection of claim 12.

Regarding **claim 22**, the structure elements of apparatus claim 21 perform all steps of apparatus claim 22. Thus claim 22 is rejected under 103(a) for the same reason discussed in the rejection of claim 21.

Regarding **claim 23**, the structure elements of apparatus claim 16 perform all steps of apparatus claim 23. Thus claim 23 is rejected under 103(a) for the same reason discussed in the rejection of claim 16.

Regarding **claim 25**, the structure elements of apparatus claim 10 perform all steps of article claim 25. Thus claim 25 is rejected under 103(a) for the same reason discussed in the rejection of claim 10.

Regarding **claim 26**, the structure elements of apparatus claim 11 perform all steps of article claim 26. Thus claim 26 is rejected under 103(a) for the same reason discussed in the rejection of claim 11.

Regarding **claim 27**, the structure elements of apparatus claim 12 perform all steps of article claim 27. Thus claim 27 is rejected under 103(a) for the same reason discussed in the rejection of claim 12.

Regarding **claim 28**, the structure elements of article claim 27 perform all steps of article claim 28. Thus claim 28 is rejected under 103(a) for the same reason discussed in the rejection of claim 28.

Regarding **claim 29**, the structure elements of apparatus claim 16 perform all steps of article claim 29. Thus claim 29 is rejected under 103(a) for the same reason discussed in the rejection of claim 16.

Regarding **claim 30**, the structure elements of apparatus claim 18 perform all steps of article claim 30. Thus claim 30 is rejected under 103(a) for the same reason discussed in the rejection of claim 18.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is 571-270-1120 and fax number is 571-270-2120. The examiner can normally be reached on M-F, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner, Art Unit 2625
4/8/2008

/King Y. Poon/
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